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Code No. : 8087

FACULTY OF SCIENCE
B.Sc. III Year Examination, March/April 2012
BIOTECHNOLOGY (General)

(Paper – III) Molecular Biology, Genetic Engineering and Immunology

Time: 3 Hours]

[Max. Marks: 100

Note : Answer all questions. All questions carry equal marks.

1. a) Explain in detail about mitochondrial genome organization in higher plants.

OR

b) Describe the organization of nuclear genome. Add a note on gene families.

2. a) Discuss in detail about the process of transcription and the structure of RNA Polymerase.

OR

b) What changes take place in chromatin structure and what role do these changes play in eukaryotic gene regulation ?

3. a) Write in detail about the choice of vectors for constructing recombinant DNA molecule ?

OR

b) Describe the principle involved in Polymerase Chain Reaction (PCR) and the steps associated in DNA amplification ?

4. a) Describe in detail about Major Histocompatibility Complex (MHC).

OR

b) Give an account of the structure and function of different immunoglobulins. Add a note on antigen-antibody reaction.

5. Write short notes on **any three** of the following :

a) Satellite DNA

b) Alternate splicing

c) Blue-white selection

d) Adjuvants

e) DNA fingerprinting technique.